Introduction

Welcome
Welcome to Mathematical Communication!

Mathematics is sometimes referred to as a language of its own, and indeed learning to use the logic and symbols of mathematics is much like learning a new language. Mathematics plays a vitally important role in our world and is the basis for all the technology, engineering, finance and economics that drive our society. In order to apply mathematics appropriately, mathematicians and others who use and teach mathematics must be able to communicate well. These people include, among others, engineers, economists, scientists, teachers and the general public. It is just as important for mathematicians and others who use mathematics to communicate effectively through the written and spoken word as it is for other professions.

This course is designed to provide students with the knowledge and skills to communicate mathematical ideas, in three important ways. First, you will learn tools to help you write professional documents containing written and mathematical text. Second, you will develop your oral presentation skills. Third, you will acquire skills and knowledge that are useful for managing large projects.

We hope you enjoy Mathematical Communication!

L.W.

Course Teaching Staff

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* Please refer to your Course homepage for the most up to date list of course teaching staff.
Course Overview

Prerequisite(s)
There are no prerequisite courses to be completed before this course can be undertaken.

Corequisite(s)
There are no corequisite courses to be completed in conjunction with this course.

Course Aim
To prepare students in areas of written and oral technical communication in the Mathematical Sciences.

Course Objectives
On completion of this course, students should be able to:

CO1. Use techniques of mathematical communication appropriate for writing a paper, writing a thesis, or prepare and deliver a professional presentation.

CO2. Write a Mathematical Paper on a topic of the student's choice.

CO3. Use the mathematical typesetting software LaTeX.

CO4. Use some elementary techniques of project management for major projects, together with consultant-client communication.

CO5. Participate in an online cultural forum and write a reflective piece in the area of mathematics and Indigenous culture.

CO6. Identify the knowledge, skills and attributes required for a particular career direction, and write a resume and cover letter in response to a job advertisement.

Upon completion of this course, students will have achieved the following combination of Graduate Qualities and Course Objectives:

<table>
<thead>
<tr>
<th>Graduate Qualities being assessed through the course</th>
</tr>
</thead>
<tbody>
<tr>
<td>GQ1</td>
</tr>
<tr>
<td>CO1</td>
</tr>
<tr>
<td>CO2</td>
</tr>
<tr>
<td>CO3</td>
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<tr>
<td>CO4</td>
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<tr>
<td>CO5</td>
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<tr>
<td>CO6</td>
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</tbody>
</table>

Graduate Qualities
A graduate of UniSA:

GQ1. operates effectively with and upon a body of knowledge of sufficient depth to begin professional practice

GQ2. is prepared for life-long learning in pursuit of personal development and excellence in professional practice

GQ3. is an effective problem solver, capable of applying logical, critical, and creative thinking to a range of problems

GQ4. can work both autonomously and collaboratively as a professional
GQ5. is committed to ethical action and social responsibility as a professional and citizen

GQ6. communicates effectively in professional practice and as a member of the community

GQ7. demonstrates international perspectives as a professional and as a citizen

**Course Content**

Topics include: Mathematical writing, English usage, writing a paper, writing a talk, giving a talk, preparing a poster, the use of the document preparation software LaTeX, finding resources in the mathematics literature, client-consultant communication, mathematics and Indigenous culture (ICUP), operational and technical aspects of project management, the use of web-based mathematical resources.

**Teaching and Learning Arrangements**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>2 hours x 13 weeks</td>
</tr>
<tr>
<td>Computer Practical</td>
<td>1 hour x 13 weeks</td>
</tr>
<tr>
<td>Tutorial</td>
<td>2 hours x 13 weeks</td>
</tr>
</tbody>
</table>

**Unit Value**

4.5 units

**Additional assessment requirements**

Students are expected to attend all lectures, tutorials and computer practicals, due to the participatory nature of the course material.
Learning Resources

Textbook(s)
You will need continual access to the following text(s) to complete this course. The library does not hold multiple copies of the nominated text books. It is strongly recommended that you purchase the book(s). An eBook version may be available but please check with the library as availability is limited and dependent on licence arrangements. http://www.library.unisa.edu.au


Reference(s)

Materials to be accessed online

learnonline course site
All other course related materials can be accessed through your learnonline course site which you will be able to access from the my Courses section in myUniSA.

myUniSA
All study related materials can be accessed through: https://my.unisa.edu.au
Assessment

Assessment Details
Details of assessment submission and return are listed under each assessment task. Assessment tasks will be returned to you within two to three weeks of submission.

If the Course Coordinator allows submissions in hard copy format, you will be required to attach an Assignment Cover Sheet which is available on the learnonline student help and in myUniSA.

Assessment Summary

<table>
<thead>
<tr>
<th>#</th>
<th>Form of assessment</th>
<th>Length</th>
<th>Duration</th>
<th>Weighting</th>
<th>Due date (Adelaide Time)</th>
<th>Submit via</th>
<th>Objectives being assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Career planning</td>
<td>500 word</td>
<td>N/A</td>
<td>10%</td>
<td>21 Aug 2017, 4:00 PM</td>
<td>In person, learnonline</td>
<td>CO4, CO6</td>
</tr>
<tr>
<td>2</td>
<td>Mathematical typesetting</td>
<td>500 word</td>
<td>N/A</td>
<td>10%</td>
<td>28 Aug 2017, 4:00 PM</td>
<td>learnonline, In person</td>
<td>CO1, CO3</td>
</tr>
<tr>
<td>3</td>
<td>Indigenous knowledge (ICUP)</td>
<td>500 word</td>
<td>N/A</td>
<td>10%</td>
<td>11 Sep 2017, 4:00 PM</td>
<td>In person, learnonline</td>
<td>CO1, CO3, CO4, CO5</td>
</tr>
<tr>
<td>4</td>
<td>Good mathematical writing</td>
<td>500 word</td>
<td>N/A</td>
<td>10%</td>
<td>9 Oct 2017, 4:00 PM</td>
<td>learnonline, In person</td>
<td>CO1, CO3</td>
</tr>
<tr>
<td>5</td>
<td>Mini-presentations - 5 minutes per week</td>
<td>500 word</td>
<td>N/A</td>
<td>10%</td>
<td>Weekly</td>
<td>In person</td>
<td>CO1</td>
</tr>
<tr>
<td>6</td>
<td>Mathematical Paper project and</td>
<td>2000 words</td>
<td>2 x 10</td>
<td>50%</td>
<td>See assessment activities for</td>
<td>See assessment activities for</td>
<td>CO1, CO2, CO3, CO5</td>
</tr>
<tr>
<td></td>
<td>presentations</td>
<td>equivalent</td>
<td>minute oral presentation s</td>
<td></td>
<td>details</td>
<td>details</td>
<td></td>
</tr>
</tbody>
</table>

Feedback proformas
The feedback proforma is available on your learnonline course site. It can be accessed via the Feedback Form link in the Course Essentials block.

Assessments

Assignment 1: Career Planning (Graded)
Students will prepare a job application in response to an advertised position. The application will include a resume and a cover letter.

Assignment 2: Mathematical Typesetting (Graded)
Students will be given pieces of text to be converted into a PDF document using the LaTeX typesetting software. This exercise will require the LaTeX techniques discussed in the first three weeks of classes, including the use of special characters and commands; formatting using paragraphs, line breaks and page breaks; the use of titles and sections; LaTeX environments such as the center environment; the incorporation of tables and figures into a document; and some basic mathematical typesetting.

Assignment 3: Cultural Awareness (Graded)
The aims of this assignment are: (1) to deepen awareness of how a person’s background (notions of culture etc.) can shape their attitudes and behaviour; (2) to relate this awareness to Indigenous Australians and culturally diverse groups, and (3) to understand culture within the context of mathematics and professional practice. Students will use reflective thinking to explore their concepts of culture. They will begin with a panel and discussion in class, next respond to several threads in an online discussion forum, then reflect on how their awareness of the concept of culture has changed, and finally write a 700-word document summarising their reflection and learning.

Version 1 (25 July 2017)
Assignment 4: Good Mathematical Writing (Graded)

This assignment will include exercises in the creation of a document that requires more sophisticated mathematical typesetting, including an annotated bibliography. The assignment will also include some material on English usage and on writing a mathematical paper.

Mini-presentations: 9 x 5 minutes (Graded)

Each week for 9 weeks, during lectures, each student will give a 5-minute talk to another student on a mathematical topic. The topics for these talks will be provided by the Course Coordinator.

Mathematical Paper project and presentations (Graded)

Assessment Activities

<table>
<thead>
<tr>
<th>Name</th>
<th>Sub-weighting</th>
<th>Due date (Adelaide Time)</th>
<th>Submit via</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talk 1 on Mathematical Paper</td>
<td>10%</td>
<td>16 Aug 2017, 12:00 PM</td>
<td>In person</td>
</tr>
<tr>
<td>Draft of Mathematical Paper</td>
<td>20%</td>
<td>4 Sep 2017, 4:00 PM</td>
<td>In person, learnonline</td>
</tr>
<tr>
<td>Final Mathematical Paper</td>
<td>50%</td>
<td>23 Oct 2017, 4:00 PM</td>
<td>In person, learnonline</td>
</tr>
<tr>
<td>Talk 2 on Mathematical Paper</td>
<td>20%</td>
<td>31 Oct 2017, 12:00 PM</td>
<td>In person</td>
</tr>
</tbody>
</table>

Mathematical Paper topics will be provided and discussed in class in Week 1. Students must select their paper topic and notify the Course Coordinator by no later than the Monday of Week 2 so that they can discuss their proposed topic individually with the Course Coordinator during Week 2. Students will also meet the Course Coordinator in Week 8 to review their draft Mathematical Paper, which is due in Week 7. Individual 10-minute appointment times will be set up. The final version of the Mathematical Paper is due in Week 12.

Each student will give two short talks on their Mathematical Paper topic: an introduction to the topic (Week 4) and a report on their work (Week 13).

Exam arrangements

There is no final examination for Math 2024.

Supplementary Assessment

Supplementary assessment or examination offers students an opportunity to gain a supplementary pass (SP) and is available to all students under the following conditions unless supplementary assessment or examination has not been approved for the course:

1. if the student has achieved a final grade between 45-49 per cent (F1) in a course
2. if a student who has successfully completed all of the courses within their program, with the exception of two courses in their final study period, a supplementary assessment or examination may be granted where the final grade in either or both of these courses, is less than 45 percent (F1 or F2)

More information about supplementary assessment is available in section 7.5 of the Assessment Policy and Procedures Manual.
Important information about all assessment

All students must adhere to the University of South Australia’s policies about assessment: http://w3.unisa.edu.au/policies/manual/default.asp.

Students with disabilities or medical conditions

Student with disabilities or medical conditions or students who are carers may be entitled to a variation or modification to standard assessment arrangements. See Section 7 of the Assessment Policy and Procedures Manual (APPM) at: http://w3.unisa.edu.au/policies/manual/default.asp

Students can register for an Access Plan with UniSA Disability Service. It is important to make contact early to ensure that appropriate support can be implemented or arranged in a timely manner. See the Disability Hub for more information: http://www.unisa.edu.au/Disability/Current-students

Students are advised there is a deadline to finalise Access Plan arrangements for examinations. Further information is available at: http://i.unisa.edu.au/campus-central/Exams_R/Before-the-Exam/Alternative-exam-arrangements/

Deferred Assessment or Examination

Deferred assessment or examination is not available for this course. APPM 7.6.4

Special Consideration

Special consideration is not available for this course. APPM 7.7.4

Variations to assessment tasks

Variation to assessment methods, tasks and timelines may be provided in:

**Unexpected or exceptional circumstances**, for example bereavement, unexpected illness (details of unexpected or exceptional circumstances for which variation may be considered are discussed in clauses 7.8 - 7.10 of the Assessment Policy and Procedures Manual). Variation to assessment in unexpected or exceptional circumstances should be discussed with your course coordinator as soon as possible.

**Special circumstances**, for example religious observance grounds, or community services (details of special circumstances for which variation can be considered are discussed in clause 7.11 of the Assessment Policy and Procedures Manual). Variations to assessment in expected circumstances must be requested within the first two weeks of the course (or equivalent for accelerated or intensive teaching).

**Extra time in exams (ENTEXT)** and the use of a dictionary may be available to some students (for example, Indigenous Australian students and those of non-English speaking background) as follows:

- extra time for reading or writing. This will be an extra ten minutes per hour for every hour of standard examination time, and
- the use of an English language or bilingual print dictionary (without annotations). (APPM 7.2.2)


Version 1 (25 July 2017)
Marking process

1. Submission:
The Assignments and the Draft and Final versions of the Expository Paper should be submitted

**BOTH** (a) in the Math 2024 assignment box in the foyer of the OC Building by 4pm on the due date,

**AND** (b) electronically through learnonline.

Marked assignments will be returned at a subsequent lecture or tutorial, within two or three weeks.

2. Format:
Please attach to each assignment a completed Assignment Cover Sheet. Staple your assignment at the top left corner. Please **DO NOT** put your assignment in a binder or plastic sleeve.

3. Keep a copy!
You may want access to your work while the assignment is being marked. Also, occasionally assignments go missing during submission and return. It is your responsibility to keep a photocopy of each assignment you submit, and to **keep your marked assignments** until final course grades have been published.

4. Late penalties:
10% of your assignment mark will be deducted if the assignment is submitted after 4pm on the due date, but before 4pm on the following business day. A further 10% will be deducted for each further day late, up to 40%. Work more than four days late will not be accepted without the **prior agreement** of the Course Coordinator, except in unexpected circumstances.

**IMPORTANT!**
HOW NOT TO PLAGIARISE!

1. Zero marks for copies.
Identical or near-identical solutions or parts of solutions will be given **zero marks**, and/or referred to the Academic Integrity Officer.

2. Write your own solutions.
While you’re working on the assignments you may discuss your work-in-progress with other students, but you **MUST** write up your solutions **by yourself**. You are **NOT allowed** to use anyone else’s written work when you are writing up your work.

3. Don’t copy.
Do not copy work from any printed or electronic source or from any person.

4. Don’t give inappropriate help.
Giving inappropriate help is just as serious as receiving it, and will have the same consequences. Don’t let anyone see your completed assignments or project.

5. Acknowledge help and joint work.
If you receive any help from other students, former students, the Maths Help Centre, the lecturer, the tutors, private tutors, or anyone else, you **MUST** make a note of it on your assignment, mentioning their name and how they helped you. Examples: ‘Frances Wu helped me with Question 2’; ‘Worked with Michael Brown on Question 4 of this assignment’; ‘Got help from Maths Help Centre on Question 4’; ‘Explained Q3 to Ravi Gupta’.

6. More info:
Please read Section 9: Academic Integrity of the UniSA Assessment Policies and Procedures Manual (http://www.unisa.edu.au/policies/manual/). Note especially the definitions of plagiarism and of academic misconduct, so that you know what to avoid.
Academic Integrity

Academic integrity is the foundation of university life and is fundamental to the reputation of UniSA and its staff and students. Academic integrity means a commitment by all staff and students to act with honesty, trustworthiness, fairness, respect and responsibility in all academic work.

An important part of practising integrity in academic work is showing respect for other people's ideas, and being honest about how they have contributed to your work. This means taking care not to represent the work of others as your own. Using another person's work without proper acknowledgement is considered Academic Misconduct, and the University takes this very seriously.

The University of South Australia expects students to demonstrate the highest standards of academic integrity so that its degrees are earned honestly and are trusted and valued by its students and their employers. To ensure this happens, the University has policies and procedures in place to promote academic integrity and manage academic misconduct. For example, work submitted electronically by students for assessment will be examined for copied and un-referenced text using the text comparison software Turnitin http://www.turnitin.com.


Submission and return of assessment tasks

See above under Assessment details.

Action from previous evaluations

You are invited to provide feedback on the course by answering the myCourseExperience questionnaires.

You are also invited to fill in an informal midterm evaluation, about a third of the way through the study period. These evaluations will be done in class on paper. They will go only to the Course Coordinator and other teaching staff in Math 2024: Mathematical Communication, and are intended to give a snapshot of how students are finding the course and any suggestions for changes, while there is still time for staff and students to make changes.

Unplanned learnonline outages (text version)

Extensions may be given for key assessment items if there are unplanned learnonline outages. The length of any extension will depend on the length and timing of related outages.
## Course Calendar

### Study Period 5 - 2017

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Topic</th>
<th>Tutorial</th>
<th>Practical</th>
<th>Notes</th>
<th>Assessment Details (Adelaide Time)</th>
<th>Public Holidays</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 - 16 July</td>
<td>Pre-teaching</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>17 - 23 July</td>
<td>Pre-teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>24 - 30 July</td>
<td>Course overview. Introduction to LaTeX typesetting software. Intro to Indigenous Content in Undergraduate Programs (ICUP). Advice on giving maths talks. Set up Mini-talk 1 for Week 2.</td>
<td>Continue LaTeX topics. Go through topics for Mathematical Paper.</td>
<td>LaTeX exercises in computer pool.</td>
<td>Choose topic for your Mathematical Paper. Write a few dot points, or make a mindmap, about your topic.</td>
<td></td>
</tr>
</tbody>
</table>
3 07 - 13 August  
Career planning. A selection from: job market, career options; knowledge, skills and attributes that employers seek; selection criteria; resume; cover letter; interview; self-marketing.

Clarify career direction; start gap analysis; start developing strategies; analyse job ads; draft resume; draft cover letter. Bring a previous resume.

Type your draft resume and cover letter for the Careers assignment.

Work on Assignment 1, Mathematical Paper and Talk 1. Review advice on giving maths talks.

4 14 - 20 August  

Student 5-minute talks on Mathematical Paper topic.

LaTeX exercises. Work on Assignment 2 on mathematical typesetting.

Finish prep of Talk 1. Deliver Student Talk 1 on Mathematical Paper. Finalise Careers assignment. Start posting on ICUP online discussion forum.

Mathematical Paper project and presentations: Talk 1 on Mathematical Paper due 16 Aug 2017, 12:00 PM.

5 21 - 27 August  
Mini-talk 3. LaTeX: maths symbols, equation alignment, arrays, matrices, cases.

Mini-talk 2. LaTeX exercises. Planning session for Mathematical Paper (sticky notes).

Typesetting mathematical formulas in LaTeX. Equations, aligning equations, arrays. Set up and test texfile for your Mathematical Paper. Start drafting some content and required LaTeX items.

Continue posting to ICUP forum. Refine plans for your Mathematical Paper. Work on Assignment 2 on mathematical typesetting.

Assignment 1: Career Planning due 21 Aug 2017, 4:00 PM.
<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>11 - 17 September</td>
<td>Mini-talk 5. English usage. When English is a foreign language. Good Problems 5: Graphs. Ch 4, 5. Proof that the square root of 2 is irrational. Type the proof from this week's tutorial. Students meet Course Coordinator individually to review draft of Mathematical Paper. 10 minutes. Assignment 3: Cultural Awareness due 11 Sep 2017, 4:00 PM</td>
</tr>
<tr>
<td></td>
<td>18 - 24 September</td>
<td>Mid-break</td>
</tr>
<tr>
<td></td>
<td>25 September - 1 October</td>
<td>Mid-break</td>
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</table>

Version 1 (25 July 2017)
<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>02 - 08 Oct</td>
<td><strong>Mini-talk 6. Writing a paper.</strong> Organisation, title, authors, abstract, introduction, citations, conclusions, acknowledgements, reference list. Good Problems 6: Introductions and Conclusions. Ch 6. A geometric proof (volume of cube in cone), and a proof by induction (sum of first n positive integers). Type the proofs from this week's tutorial. Work on Assignment 4 on good mathematical writing. Continue work on Mathematical Paper.</td>
</tr>
<tr>
<td>06</td>
<td>12 Nov</td>
<td><strong>Swot-vac</strong></td>
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*Version 1 (25 July 2017)*
<table>
<thead>
<tr>
<th>Date Range</th>
<th>Event</th>
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<tbody>
<tr>
<td>13 - 19 November</td>
<td>Exam week</td>
</tr>
<tr>
<td>20 - 26 November</td>
<td>Exam week</td>
</tr>
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